

Be Fair to the Manufacturer and Dealer

Misunderstandings Often Due to Owners Not Knowing How to Properly Care for Their Cars

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The writer often receives inquiries from readers of this paper, in which they say: "My engine has been missing lately." "Recently there has been a miss in my engine." "For the last week or so there has been a knocking in my engine," etc., and then they give other actions, and ask for information regarding the cause.

While the writer is always happy to answer such questions, he wishes to say that the man who runs his engine while it is missing for a week, or even a day, does a wrong—a great wrong, to his pocketbook; a wrong to his engine; and if he blames the quick deterioration of his car, or the quick wearing out of his tires on the manufacturers thereof, he does a wrong to the manufacturer.

Gasoline is expensive, and the running of a car with a missing engine is a waste of gasoline. Why? Because for every two revolutions of the crank shaft, each cylinder is filled with a certain amount of gasoline, no matter whether it is exploding or not. If it fails to explode, this gasoline is exhausted into the muffler, and then into the atmosphere. So, if one cylinder of a four-cylinder engine is missing, and only three working, one-third as much gasoline is wasted as is actually used to drive the car.

A missing cylinder is expensive because of the increased tire bills. Each time the engine comes to the missing cylinder, the car will slow up; not only because of the lack of power, but because of the checking action of the compression in the other cylinders; then, when the gases in the cylinder following the missing one explode, the car wants to jump forward, and were it not for the slipping action of the clutch and of the tires on the ground, the "jerk" would be far more severe than it seems to be. When your tire slips as mentioned above, some of its rubber is left behind.

Have you ever watched a laborer

breaking a stone with a heavy hammer? If you have, you will recall that he must hit the stone from 12 to twenty blows before it breaks. Have you ever thought why the stone breaks on the last blow, which needs must be a weak one, due to the tiredness of the laborer, instead of one of the more powerful first blows? The reason is that while the first blow was not strong enough to break the stone, it did break the cohesion or holding-together power of many of the molecules; the second broke more of them, and so on, until there were so few of the molecules holding, that the stone broke asunder on the last and weakest blow.

When you are running a car with a missing cylinder, you are subjecting all of the parts to many blows—blows equivalent to that of a hundred-pound hammer, and at 15 miles per hour there will be in the neighborhood of six hundred of them per minute. These blows will first come on the parts of the engine, then the clutch, the transmission, rear axle, tires, and, finally, on the passengers who feel the series of "jerks" or "jerks" in reality being nothing more than cushioned blows.

You know that a "jerking" car will tire the passengers. Is it not fair to assume that it will also tire the metal and that the metal, like the stone, will gradually become weakened, because of the blows it is made to stand?

I say to you again therefore, that you do a wrong—a great wrong—when you run your engine with a miss, and if, after you have corrected the miss, your clutch, or some other part, gives you trouble, you need not be discouraged nor embittered against your car. After you have repaired the clutch or other part, your car will probably run well again, and the fault was yours, and yours only.

The fact that a missing cylinder is expensive in the consumption of gasoline, makes the fact that the driver did not know how to look for or correct the miss, no excuse for running his car with it, as the cost of gasoline would probably more than pay for expert advice; nor is the fact that the driver was in a hurry an excuse, as the time lost in traveling with a miss is far greater than would usually be required to correct it.

How to Locate Miss.
There are two kinds of misses, regular, that is, where the miss is in one cylinder only, and irregular, that is, where the miss is in first one cylinder and then in another. The latter is usually due to the fact that the driver fails to grind the valves, while the former is usually due to spark trouble or great compression loss in the missing cylinder.

If the miss is irregular, the carburetor adjustment should be tried, or the valves reground.
If the miss is regular, the first thing to do is to find which cylinder is missing. This can best be done by making the cylinders miss (by holding a screwdriver against the top of the spark plug and the metal of the engine, one after the other. Of course

if, when you make a certain cylinder miss, the engine misses twice as much as before, this cylinder could not have been the missing one. You will finally come to one, the making miss of which will not change the way the engine runs. This is the missing cylinder.

Having located the missing cylinder, see if you are getting current to the spark plug. To do this take the wire off the plug, and while the engine is running, hold it about 1-32 of an inch from the clean, unpainted metal of the engine. If you see a spark you know that your ignition system, with the exception of the spark plug, is O. K. If you have an extra plug—and you should have—replace the old plug with it. In nine out of ten cases you will find that the miss has disappeared. If you do not get a spark at the wire, then the trouble is in the ignition system, and you must look further into it.

Should you find that the replacing of the plug as above does not get rid of the miss, see that the valves of this cylinder are not sticking and that the valve adjusting nuts are not too tight. It may be that you have a bad loss of compression due to a dirty valve or leaking piston rings. As this is a cheap job, you will have to go home with the miss, but when traveling take your hills on second and steep ones on low.

A Knock.
Like the missing engine, one with a "knock" will fast cause destruction and ruin of the parts. When your engine develops a "knock" find and remedy the cause as quickly as possible.

All "square" and fair-minded men before complaining or "knocking" their car should ask themselves if they have been fair to it. If they have driven it to any amount with a "miss" or "knock" they can be sure that they have not.

THE AUTOMOBILE SIMPLIFIED

CONTINUED FROM PRECEDING PAGE
large enough generator or dynamo, to give. Fortunately, the induction coil, which will be explained later, can be used to convert a low voltage current into one of high voltage.

There are three methods used in the automobile to obtain the electrical current, namely: the dry cell, which is a device by which the current is made due to a chemical action; the storage battery, a device by which the current from some other source is stored up to be used at will; the magneto and generator or dynamo, by which some of the energy of the engine is converted into electricity.

The magneto will take up separately, while the storage battery and generator will be taken up with the starting and lighting systems.

The Dry Cell.
A dry cell usually has an outer shell made of zinc, next to which are placed a number of layers of blotting paper, saturated with a solution of sal-ammoniac and water. In the center is a piece of carbon, the space between this and the blotting paper being filled up with either coke or sawdust. The top of the battery is then sealed.

If a wire is connected to the inner carbon, then run to the units where current is required, and then back to the zinc of the battery, a current having a pressure of about 1½ volts will, due to a chemical action, be between the zinc and the solution in the blotting paper, flow from the carbon through the units and return to the zinc.

To current coming from the car-

bon, we say it is the positive pole and the screw for fastening the wire to it the positive terminal, while the zinc, to which the current returns, is the negative pole, and its screw the negative terminal. I might say here that in all devices which give electrical current, the terminal from which the current flows is called the positive, usually marked (+), while the one to which the current returns is called the negative, and is usually marked (-).

A dry cell will yield a current having a pressure of 1½ volts, this pressure not being affected by its size, as a small vest pocket cell will have the same voltage as one of the size of a barrel would have. The quantity, or amperage, of current, however, will vary with the size; the standard size cell, when fresh giving from 20 to 25 amperes.

To increase the voltage (the usual voltage for automobile ignition sys-

tems is about 6) we connect in series, that is, we connect the positive terminal of one cell to the negative of another, the positive of the second to the negative of the third, and so on. The diagram shows such a connection.

To increase the amperage we connect in multiple, that is, all of the negatives and all of the positives are connected together. This will increase the amperage, but the voltage will be the same as that of one cell, or 1½.

To increase the voltage and the amperage we first connect up two sets of cells in series, each set to give the required voltage, and then connect these sets in multiple.

The diagram shows these three connections.
Clip these articles as they appear each Sunday in The World only, and save them, as one forms the connecting link to the other—they will make a complete intelligent discussion on

all the important parts of the automobile. Order The World to advance of your newsdealer, so as not to miss any of the articles of the series.

Birds and Men.

None of the wild birds in New England is as nearly domestic as the robin, and no other bird fits into the scenery better, or is more welcome in spring. It is a bird of unconquerable courage, or it would not arrive here before the snow leaves, and it develops a fine sense of ownership. No millionaire, surveying his private park, can look the part of the proprietor better than can the robin when it reveals a lawn with which it was familiar the summer before. It expects to find a worm exactly where it found one, last year, and, as a rule, it is not disappointed. It looks at the human who may own the lawn and possibly remarks: "There's the man who was here last year," just as the man

tries to think that the robin is the one he saw in 1915.

After all, the bird and the man are much alike; the bird has a brief period of lovemaking and nest-building and then it works, from sunrise till sunset, to care for the family. So does the man, if he is in the right sort. Fall comes and the bird faces the possibilities of starvation, or of sudden death from some of its enemies, and the man faces the increasing possibilities of pneumonia or apoplexy. Next spring comes, and finds another robin and another man, the only thing remaining unchanged being the land. Both the robin and the man dream that they possess it and yet, after all, it acquires them.—Hartford Courant.

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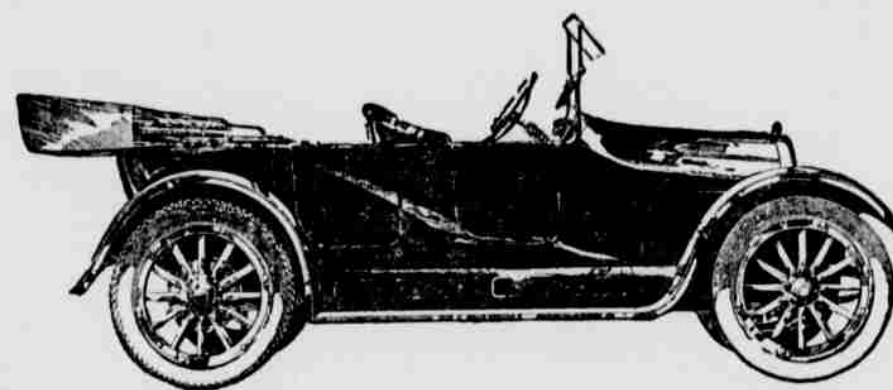
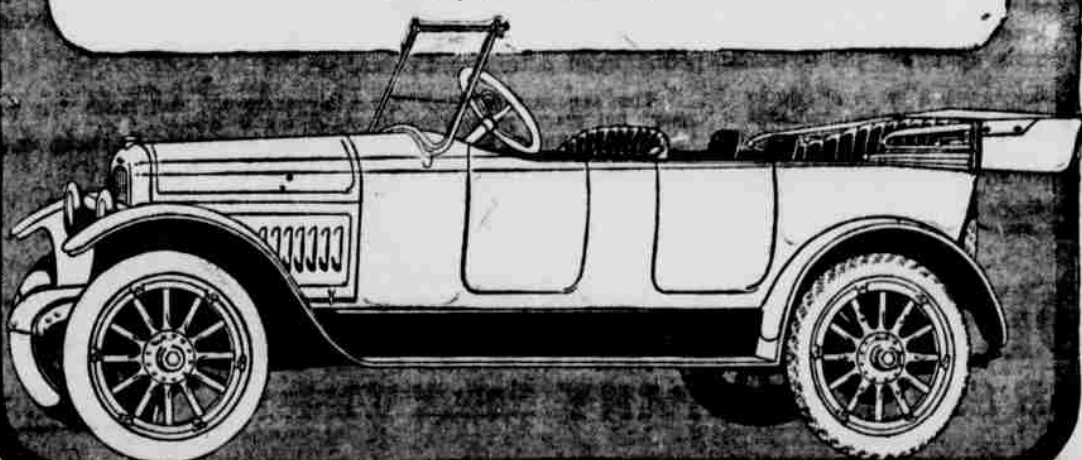
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